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CHINA REPORT

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Automotive Engineering

AUTHOR: None

ORG: First Automobile Works

TITLE: "Raising Compression Ratio with a New Type of Carburetor for a L-head Gasoline Engine to Raise Its Fuel Economy"

SOURCE: Beijing QICHE GONGCHENG [AUTOMOTIVE ENGINEERING] in Chinese No 3, 1981 pp 1-8

TEXT OF ENGLISH ABSTRACT: With the availability of higher octane gasoline (from 66 to 70 MON), a widely-used L-head gasoline truck engine was modified to improve its performance. The compression ratio was raised from 6.0 to 6.4 so that power output was raised by 5 percent and maximum torque by 1.35 percent, with fuel consumption reduced by 1.86 percent. For further reduction of fuel consumption a new type of carburetor with smaller venturi tube was developed, aiming at maintaining the original power and torque while reducing fuel consumption. Engine bench tests showed that the minimum fuel consumption at WOP was reduced by 9.21 percent. Subsequent road tests proved that there is no noticeable difference between the truck with the improved engine and the original one in acceleration and maximum speed, but fuel consumption both in constant speed tests and service was reduced by more than 10 percent.

For further raising compression ratio and power output or lowering fuel consumption, a new aluminum alloy head is not under development.

AUTHOR: LU Chengqiao [4151 2052 9438]

ORG: Petrochemical Engineering Institute

TITLE: "Some Problems with Automotive Fuels and Lubricants"

SOURCE: Beijing QICHE GONGCHENG [AUTOMOTIVE ENGINEERING] in Chinese No 3, 1981 pp 9-15

TEXT OF ENGLISH ABSTRACT: In this paper some problems with the effect of automotive fuels and lubricants on energy conservation were raised. The state of the art and existing problems of fuel qualities, including gasoline octane number, were discussed. The test methods and instrumentation of engine lubricants were also introduced.

AUTHOR: YIN Dekui [1438 1795 7608]

ORG: Changchun Automotive Research Institute

TITLE: "The Existing Status of Exhaust Emission of Three Gas-engine Trucks and Their Remedies"

SOURCE: Beijing QICHE GONGCHENG [AUTOMOTIVE ENGINEERING] in Chinese No 3, 1981 pp 16-32

TEXT OF ENGLISH ABSTRACT: Three gas-engine trucks' exhaust emission was tested and analyzed. Some measures were given to reduce the exhaust emission, generally and individually.

AUTHOR: ZHU Qian [2612 0241]

ORG: Qinghua University

TITLE: "Methods for Determining the Nominal Power of Automotive Diesel Engines"

SOURCE: Beijing QICHE GONGCHENG [AUTOMOTIVE ENGINEERING] in Chinese No 3, 1981 pp 33-39

TEXT OF ENGLISH ABSTRACT: Comments on the national standard for testing automotive diesel nominal power were given and some questions were raised. Some critical factors and ambient conditions affecting engine nominal power were isolated. Finally, correction formulas were also given.

AUTHOR: SUN Kainan

ORG: None

TITLE: "The Use of Programmable Calculators"

SOURCE: Beijing QICHE GONGCHENG [AUTOMOTIVE ENGINEERING] in Chinese No 3, 1981
pp 40-49, 15

TEXT OF ENGLISH ABSTRACT. In this paper some explanations are given as to the use of programmable calculators. Some examples, especially ones of automotive engineering, are also given. The author also broadens his view by describing how the calculators of this type can be used for control purposes. Finally, these calculators can be used in factories, design offices and research institutes solving most of the calculation problems.

9717

CSO: 4009/13

Biochemistry

AUTHOR: QIN Wenbin [4440 2429 2430]
LIANG Youzhen [2733 0645 3791; deceased]

ORG: Both of the Department of Hemoglobin, Baotou Medical College, Baotou

TITLE: "Hemoglobin A₂ Phenomenon. I. Discovery and Preliminary Application of this Phenomenon"

SOURCE: Shanghai SHENGWU HUAXUE YU SHENGWU LIXUE BAO [ACTA BIOCHIMICA ET BIOPHYSICA SINICA] in Chinese No 2, Jun 81 pp 199-204

TEXT OF ENGLISH ABSTRACT: 1. A natural phenomenon discovered in our laboratory is here tentatively described as "Hemoglobin A₂ Phenomenon."
2. HbA₂ of hemolysate differs from "HbA₂" of RBC in their electrophoretic behavior, which is the main feature of the "HbA₂ Phenomenon."
3. When erythrocytes from normal adults were run parallel to their hemolysates in thin layer starch gel electrophoresis, it was found that HbA and carboanhydrase from the above two sources have identical electrophoretic positions, only "HbA₂" of erythrocytes differs from HbA₂ of hemolysates in that "HbA₂" moves faster to the anode than does HbA₂.
4. HbF, HbN-Baotou, HbD-Baotou and HbE do not show the above described difference between erythrocytes and hemolysates and do not show the "HbA₂ Phenomenon."
5. The mechanism of "HbA₂ Phenomenon" is not yet clarified, but its preliminary application has been found. It is known that HbE has identical or similar

[Continuation of SHENGWU HUAXUE YU SHENGWU LIXUE BAO No 2, Jun 81 pp 199-204]

electrophoretic behavior and chromatographic properties as does HbA₂, but their differentiation is difficult. Now the "HbA₂ Phenomenon" may be used to distinguish HbE from A₂. As mentioned above, HbA₂ shows the "HbA₂ Phenomenon," while HbE does not.

AUTHOR: CHEN Yuancong [7115 6678 5115]
WU Xiangfu [2976 4382 4395]
ZHANG Jingkang [1728 2529 1660]
JIANG Mingshi [3068 2494 1853]
XU Ke [1776 4430]

ORG: CHEN and WU both of the Shanghai Institute of Biochemistry, Chinese Academy of Sciences; ZHANG, JIANG and XU all of the Shanghai Institute of Physiology, Chinese Academy of Sciences

TITLE: "Further Purification and Biochemical Properties of Presynaptic Neurotoxin from the Snake Venom of Agkistrodon halys Pallas"

SOURCE: Shanghai SHENGWU HUAXUE YU SHENGWU LIXUE BAO [ACTA BIOCHIMICA ET BIOPHYSICA SINICA] in Chinese No 2, Jun 81 pp 205-212

TEXT OF ENGLISH ABSTRACT: Agkistrodotoxin, a presynaptic neurotoxin and one of the two neurotoxins from the snake venom of Agkistrodon halys Pallas, has been further purified by DEAE-cellulose and CM-Sephadex column chromatography and vertical slab polyacrylamide gel electrophoresis. A homogeneous neurotoxin was obtained which showed a single band at either alkaline or acidic pH. This protein consists of 121 amino acid residues and the molecular weight estimated from the results of quantitative amino acid analysis is 13,700, a value quite near to that determined by SDS-polyacrylamide gel electrophoresis of 13,400. Its N-terminal is asparagine and C-terminal is serine. The purified neurotoxin exhibits phospholipase activity 11 times that of the crude venom.

9717
CSO: 4009

Biology

AUTHOR: LI Ming [2621 2494]
XU Luxia [1776 7216 7209]
LI Wenyu [2621 2429 5940]

ORG: All of the Shanghai Institute of Cell Biology, Chinese Academy of Sciences

TITLE: "Isolation and Purification of Alpha-fetoprotein Messenger RNA From Rat Transplantable Hepatoma BERH-2"

SOURCE: Shanghai SHIYAN SHENGWU XUEBAO [ACTA BIOLOGIAE EXPERIMENTALIS SINICA]
in Chinese No 2, Jun 81 pp 145-152

TEXT OF ENGLISH ABSTRACT: Messenger RNA coding for alpha-fetoprotein (AFP) was isolated and purified from rat transplantable hepatoma BERH-2 by indirect immunoprecipitation of AFP-synthesizing polysomes followed by poly (U)-Sephadex affinity chromatography of poly (A)-containing mRNA. The purified AFP mRNA migrated as a single band at 22 S on a gel of 2 percent polyacrylamide - 0.5 percent agarose. In wheat germ extract, the AFP mRNA directed the synthesis of a protein, which was identified as authentic AFP by means of double antibody immunoprecipitation and gel electrophoresis, with 95 percent nascent AFP peptide migrating along with carrier AFP. The translation product in wheat germ system under optimal conditions indicated that the AFP mRNA was purified as high as 54-fold more than the original AFP polysomal RNA.

[Continuation of SHIYAN SHENGWU XUEBAO No 2, Jun 81 pp 145-152]

DNA complementary to the AFP mRNA (AFP³H-cDNA) was synthesized with avian myeloblastosis virus reverse transcriptase (a generous gift from Professor P.H. Hofschneider, Max-Planck-Institute für Biochemie, West Germany). The fidelity of the AFP cDNA transcript was determined by analyzing thermal denaturation of AFP mRNA, AFP³H-cDNA hybrids. A sharp melting profile was obtained with a T_m of 89°C, suggesting that the cDNA was a faithful copy of AFP mRNA.

AUTHOR: ZHANG Jingbo [1728 7234 3134]
WANG Ruizhen [3769 3843 3791]

ORG: Both of the Department of Cell Biology, Cancer Institute, Chinese Academy of Medical Sciences, Beijing

TITLE: "An Observation of In Vitro Invasiveness of Human Cancerous Cell Lines"

SOURCE: Shanghai SHIYAN SHENGWU XUEBAO [ACTA BIOLOGIAE EXPERIMENTALIS SINICA.]
in Chinese No 2, Jun 81 pp 153-157

TEXT OF ENGLISH ABSTRACT: A simple confrontation culture method was described. Cell suspensions of two human cancerous cell lines and diploid human fetal lung cells and baby golden hamster fibroblasts were prepared and subcultured in culture flasks in a 30 degree sloping position. Twenty-four hours later, the supernatants were discarded and the attached cells washed twice with Hanks' solution. The embryonic chick heart muscle was then explanted in the flask about 1 mm in front of the top line of the attached cells. The culture flasks were placed horizontally four hours later. After 24-48 hours incubation the cultures were fixed and stained for observation.

The results showed that, under such circumstances, human hepatoma cell line BEL-7402 and human esophageal cancer cell line ECa-109 invaded the area of the embryonic chick heart muscle fibroblasts and formed cancer cell islands among them.

[Continuation of SHIYAN SHENGWU XUEBAO No 2, Jun 81 pp 153-157]

while the embryonic chick heart muscle fibroblasts went aside as if to avoid contact with the malignant cells, or stopped growing and ceased to divide as they were confronted with BEL-7402 cells or ECa-109 cells. On the other hand, when normal diploid human fetal lung cells or baby golden hamster lung cells came into contact with the embryonic chick heart muscle fibroblasts, they did not invade the latter. They simply changed their direction of growth. Since the in vitro behavior of human malignant cells was different from that of human fetal lung cells and that of baby golden hamster lung cells as described in this paper, it is possible that the in vitro invasiveness might be considered an important feature characteristic of human malignant cells.

AUTHOR: LIANG Suxiang [2733 4790 7449]
PANG Shiyi [1690 6108 1355]
DONG Ronghua [5516 5554 5363]
et al.

ORC: All of the Shanghai Institute of Cell Biology, Chinese Academy of Sciences

TITLE: "Radioimmunoassay of Serum Concentrations of Testosterone and LH in Male Rats Administered with Gossypol"

SOURCE: Shanghai SHIYAN SHENGWU XUEBAO [ACTA BIOLOGIAE EXPERIMENTALIS SINICA]
in Chinese No 2, Jun 81 pp 191-197

TEXT OF ENGLISH ABSTRACT: It has been reported that about 6 percent of volunteers administered gossypol complained of decreasing libido. However, serum testosterone and LH level measured in part of the volunteers was not in accordance with their complaints. Even when the volunteers felt libido decreasing, the serum concentrations of testosterone were still in the normal range. In addition, the small amount of information obtained from animal experiments suggested that gossypol did not affect the serum concentrations of the testosterone and LH in male rats. Clinically this phenomenon has not been interpreted. However, testes atrophy was revealed in rats and in men administered gossypol on a long term basis. It should be studied whether testicular degeneration is caused by decreasing of testosterone or not.

Continuation of SHIYAN SHENGWU XUEBAO No 2, Jun 81 pp 191-197

With radioimmunoassay, the serum concentration of testosterone and LH was determined in immature and mature rats (Wistar strain with known birthdays) after treatment with gossypol. The experiments were divided into several groups as follows: The first group, immature rats of 30 days of age, were treated with gossypol at a dosage of 20 mg/kg body weight, five times a week for two months; the second, immature rats also, were treated under the same conditions as those in group one, but the drug was withdrawn after one month; the third, mature rats, were administered gossypol of 5 mg/day five times weekly for one month and six months. Untreated normal immature and mature rats of the same ages were used as controls for each group. The animals in each group were sacrificed on time, and blood samples were collected separately. For comparison with themselves, mature rats were treated with gossypol monthly and then withdrawal for a month, with blood being collected by cardiac puncture before and after treatment.

Serum testosterone was measured by Corker's method (1978) without chromatography. Serum LH was determined by Niswender's ovine-ovine method (1968), using NIH-LH-S 15 as the reference standard. The purified ovine LH 2-2-1 was labelled with ^{125}I by Greenwood's method (1963), and the purification of ^{125}I -LH2-2-1 was performed by Wang's method (1979).

The results indicate that serum concentrations of testosterone decreased significantly ($P < 0.025$) in immature and mature rats by gossypol treatment for different time intervals, and the evocation of testosterone levels was not found after

[Continuation of SHIYAN SHENGWU XUEBAO No 2, Jun 81 pp 191-197]

cessation for a month. However, there was no change in serum level of LH in all groups. The decrease of testosterone is not connected with the body weight and testis atrophy. It was concluded that the decrease of serum testosterone might be due to a direct effect exerted by gossypol on Leydig cells, and the accumulation of gossypol in the testes might result in the concentration of testosterone being maintained at a lower status.

9717

CSO: 4009/492

AUTHOR: LI Wenliang [2621 2429 5328]

ORG: Yunnan Provincial Bureau of Geology

TITLE: "Voice Recognition and Synthesis Technology"

SOURCE: Beijing DIANZI JISUANJI DONGTAI [COMPUTER REVIEW] in Chinese No 7, 81 pp 43-50

ABSTRACT: Traditional methods of man-machine interface all have various shortcomings, so the goal of man-machine conversation is important. Following advances in integrated circuit technology and speech information processing this ideal has become reality. Many countries have been doing research in speech recognition and speech synthesis. Speech recognition began in the 1950's when Davis et al experimented on the recognition of the digits 0 -9. Different speakers produce different sounds, but by means of speech frequency analysis we find that the resonance peaks (characteristic frequency constituents) of similar sounds are similar. Davis et al using 900 Herz as a boundary used a two channel filter, but the recognition rate was low. Now as many as 20-30 filters are used. The PARCOR (partial autocorrelation) method developed in Japan involves connecting points to obtain a curve which shows the characteristics of the frequency spectrum. Recent speech recognition developments have involved such things as translation machines. The Japanese IQ-3000 has a five language translation capability and translates 5000 common words. Artificial speech synthesis started in 1779. The

[continuation of DIANZI JISUANJI DONGTAI No 7, 81 pp 43-50]

first electrical apparatus was produced in 1902. In the 1950's speech synthesis based on recording appeared. Current research is based on using digitized speech information to reproduce speech. The PARCOR system mentioned above is also used in speech synthesis

AUTHOR: LIU Yulin [0491 3768 2651]

ORG: Research Institute of Computer Science, Chinese Academy of Sciences

TITLE: "A Method of Testing Large Scale Computers"

SOURCE: Beijing DIANZI JISUANJI DONGTAI [COMPUTER REVIEW] in Chinese No 7, 81 pp 64-65

ABSTRACT: The design of computer accessories has advanced with the development of large scale computers, but traditional methods of testing are still used on large scale computers. These methods are costly in time and money and are very error prone, while making ever increasing demands on service consoles. This also results in a great deal of hand coded diagnostic programming, with obvious inefficiencies. Hand recording of diagnostic data is also a problem. Therefore it is necessary to find simple, easily implemented, economical, reliable and thorough testing methods which can shorten testing time. The use of efficient diagnostic programming is an important method. In this matter the simulation of computer logic is very important to guarantee that the logical design is correct before the computer, which could consist of hundreds of integrated circuits, is put together. It is also necessary to produce small scale test equipment and maintenance consoles that can be used for testing all components of a computer. This equipment allows binary signals to be sent directly to the components to be tested. The results can then be directly printed in binary or octal. With the above

[continuation of DIANZI JISUANJI DONGTAI No 7, 81 pp 64-65]

methods we have achieved rather good results. For example, a diagnostic program of 3600 lines used to test the instruction control unit was completed in ten days.

6168

CSO: 4009/499

Electric Power

AUTHOR: None

ORG: Ministry of Electric Power Industry; National Bureau of Urban Construction

TITLE: "Several Principles on the Planning and Designing of Urban and Suburban Power Supply Networks (Provisional)"

SOURCE: Beijing DIANLI JISHU [ELECTRIC POWER] in Chinese No 9, Sep 81 pp 2-4

ABSTRACT: Urban power supply network includes the power supply of a metropolitan area and is responsible for supplying the power needed for the development of the national economy, culture, education, and the livelihood of the people. The power supply networks of China's cities have old equipment and backward technology and cannot meet the needs of 4 modernizations. The provisional principles are formulated for the purpose of reconstructing the urban power supply networks of the country gradually, step by step, on the foundation of the current networks to make them into safe, economical, superior quality power supply networks of advanced technology. Aside from outlining the designing objectives, requirements, etc. the paper includes discussions on the need for analyzing and computing the power needs of a city, simplifying the voltage, guaranteeing the needs of communication and automation, and standardization. This is originally a public announcement of the 2 organizations, carrying the document identification of Diansheng No 35.

AUTHOR: MA Fangli [7456 5364 4409]
SUN Junmo [1327 0689 4438]

ORG: Both of Research Institute of Electric Power Construction

TITLE: "Application of Separate Series Cooler in the No 3 HP Heater of 200 MW Steam Turbines"

SOURCE: Beijing DIANLI JISHU [ELECTRIC POWER] in Chinese No 9, Sep 81 pp 9-11

ABSTRACT: In recent years, independent coolers have been adopted in such countries as W. Germany, France, the USSR, etc. in their large reheating steam turbines to improve heat efficiency and to save fuel of thermal power plants. Generally, this type of cooling is in one or 2 stages; 3 or more stages in a few cases. In China, there are now one 300MW machine made in France at Yuanbaoshan Power Plant, one 200 MW machine made by the USSR at Matou Power Plant, etc. all equipped with this type of cooler. The 300MW steam turbine produced by Shanghai Steam Turbine Plant also has this type of cooler at the 2nd and the 3rd stages. This paper introduces the design considerations and problems discussed at a meeting in 1979 called by Harbin Steam Turbine Plant for the purpose of providing Harbin Boiler Plant a finalized design to manufacture the coolers for the No 3 HP heater of the 200 MW steam turbine. In the discussion process, 10 different designs are analyzed, computed, and compared. Several different viewpoints on the subject are included in the paper.

AUTHOR: HU Guilan [5170 2710 5695]
WU Zhiye [4151 0037 6851]

ORG: None

TITLE: "Frequency Allocation Method in the Power Carrier-Current Relaying System"

SOURCE: Beijing DIANLI JISHU [ELECTRIC POWER] in Chinese No 9, Sep 81 pp 44-49,
19

ABSTRACT: In a power carrier wave communication system, channels are realized by adopting the theory of frequency division. In the past, the method of interpolation is generally adopted. It may appear that with this method, frequencies may be randomly grouped, but as the power network expands, the frequencies of the system are quickly saturated while not all the frequency spectra can be fully utilized. This paper discusses the relationship between the transmission quality indices, the technical property of the carrier wave equipment, and the high frequency transmission property of the electric cable, based upon related recommendations of the IEC and the related standards of the CCITT. The method of frequency allocation was preliminarily adopted in the Beijing-Tianjin network, and the technical and economic results have been very satisfactory. This method can greatly increase the number of channels in a system, the paper demonstrates in considerable detail, while all the channels will meet the desired transmission quality.

6248

CSO: 4009/496

Electronics

AUTHOR: LI Renmei [2621 0088 5019]

ORG: None

TITLE: "The CDS-1 Single Tube Color Television Camera"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 8, 11 Aug 81 p 14

ABSTRACT: The Dalian Electronic Research Institute has successfully made the CDS-1 single tube color television camera. Its technical certification has been completed and it is now being produced in small batches. Advanced techniques are incorporated and a monitoring circuit is included to observe the quality of the images through the magnetic recording tape. At the head of the camera there is a small electret microphone so that voice signals are obtained at the same time. The power supply for the camera may be either DC or AC (11.5-14V DC or 220 V AC.) The machine has both internal and external synchronism so that several cameras may be coordinated for editing. If a motor-driven lens and other electrical equipment are added, the camera may be conveniently used for remote control industrial color television. It may also be used with foreign make color video recorders for extensive applications in industry, education, medicine, scientific research, national defense, etc.

AUTHOR: SUN Benchang [1327 2609 2490]

ORG: None

TITLE: "The SR-13B 300 MHz Oscillograph"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 8, 11 Aug 81 p 14

ABSTRACT: The Liaoning Radio Plant No 2 (Dalian) has successfully made the SR-13B 300 MHz wide frequency band oscillograph. The design has been finalized and the instrument is being produced in batches. The ultra-wide band 300 MHz sensitivity is 10m V/cm; in a series system the maximum sensitivity is 1mV/cm. Being a necessary instrument for observing and recording high speed, complex pulse wave forms, the SR-13B may be extensively applied in nuclear physics research, laser technology, high differentiation radar, high speed electronic computer, color television industry, etc.

AUTHOR: TAN Detong [6223 1795 0681]

ORG: None

TITLE: "Artificial Satellite Laser Range Finder"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 8, 11 Aug 81 p 14

ABSTRACT: Artificial satellite laser range finder is used to study changes in earth's rotation, polar shift, the shape of the earth, earth's gravitation field, continental drift, etc. It is an important instrument in astrogeodynamics, geodetic survey, and seismology. The modernized range finder is a complex instrument of optics, mechanics, and electricity. It has a computer to achieve total automation in the observation process. Based upon the known orbit of the satellite, the computer guides the telescope's aim on the target and commands the laser to shoot when the telescope catches up with the satellite. The computer rectifies the results and stores the data. If the target is lost in the process of observation, the computer will immediately and automatically execute a scan and search procedure in order to renew the aiming process. The first generation artificial satellite laser range finder, a photo of which is used as the front cover of this issue of the journal, is a product of joint research by Shanghai Observatory and Shanghai Institute of Optical Machines. The instrument has been installed in the Sheshan Work Station of Shanghai Observatory. Artificial satellite laser range finders have been successively installed in Beijing, Kunming, Zhengzhou, Xian, Guangzhou, etc. in recent years to form a preliminary observation network.

6248

CSO: 4009/485

Geology

AUTHOR: YIN Hongfu [3009 7703 4395]

ORG: Wuhan College of Geology

TITLE: "Paleogeographical and Stratigraphical Distribution of the Lower Triassic Claraia and Eumorphotis (Bivalvia)"

SOURCE: Beijing DIZHI XUEBAO [ACTA GEOLOGICA SINICA] in Chinese Vol 55 No 3, 1981 pp 161-169

TEXT OF ENGLISH ABSTRACT: Based on a worldwide review of Claraia and Eumorphotis, especially their important species, two range zones are recognized, namely, the Cl. wangi zone--Otoceratan, and the Cl. aurita-Eu. multiformis zone--Upper Otoceratan to Lower Owenitan, thus revising both the traditional Chinese concept regarding them as Lower Scythian and the viewpoints of some Eurasian researchers holding Eu. multiformis as Upper Scythian.

The paleogeographical distribution of the two genera is controlled primarily by temperature (latitude) and secondarily by physiographic separations. Three realms and five provinces are subdivided, among which the Eastern Asia Province of the Tethys Realm is suggested to be the source area of their development. The striking contrast between the composition of the species along the southern and northern margins of the Tethys, together with other distributional characteristics, supports the continental drift theory.

AUTHOR: LI Chunyu [2621 2504 2509]
WANG Quan [3769 4019]
LIU Xueya [0491 7185 0068]

ORG: All of the Institute of Geology, Chinese Academy of Geological Sciences

TITLE: "The Metallogeny and Plate Tectonics of China"

SOURCE: Beijing DIZHI XUEBAO [ACTA GEOLOGICA SINICA] in Chinese Vol 55 No 3, 1981 pp 195-204

TEXT OF ENGLISH ABSTRACT: Since Phanerozoic times, four Paleo-plates have existed in China and her adjacent regions. The China plate is in the middle, the Siberian plate, including the Siberian massif and Angara-Mongolian Geosyncline along its southern margin, lies to the north, the Indian plate including the southern Tethyan Geosyncline lies to the southwest, and the Pacific plate is situated to the southeast. When they meet, three sutures are created among them, i.e., the Kelameili-Solon suture, the Yaluzangbu-Indus suture and the longitudinal valley suture of Taiwan. In addition to the above-mentioned sutures along the said four plate margins, investigations in recent years have revealed 11 main subduction zones coming into existence from Paleozoic to Cenozoic times. They are situated in the following orogenic belts respectively: the Aertai, Qilianshan, Qinling, Beitashan-Hegenshan, Tianshan, Yinshan-Tumen, Kunlunshan, Nadanhadaling, Kekexili, North Tibet-West Yunnan. This is the basic framework of plate tectonics in China.

Based on the relevant tectonic and rock associations, the endogenic ore deposits of China are tentatively classified into four associations:

- (1) Ore deposits in ophiolites, including chromite, nickel, platinum, asbestos and copper-bearing massive sulfide deposits, formed at the accreting plate margins near the spreading centers, are emplaced later as oceanic crustal slabs and upper mantle fragments within the orogenic belts.
- (2) Ore deposits related to calc-alkali magmatic rocks, including iron, copper of contact metasomatic genesis, porphyry copper deposit containing Au, Mo and some Pb, Zn ores, are found in the overriding plates of the subduction zones along convergent plate margins.
- (3) Tungsten, tin deposits and some pegmatitic deposits containing rare metals belong to the association related to anatectic acid magmatic rocks. They are always formed in the higher part of the crust. It is suggested that the uplifting of host acid magmatic rocks is due to the thickening of the sial layer at the back continental margins which coincide with intermediate-low P/T metamorphic belts.
- (4) The association in alkaline or meta-alkaline rocks includes vanadium-titanium-ferrous magnetite, copper-nickel sulfide, rare metals and diamond. Most of these deposits occur along the rifts or deep fractures.

Based on the relations between the endogenic mineralization and plate tectonic pattern of China, four metallogenic domains can be recognized. The main features of these domains are briefly discussed separately.

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RUI Zongyao [5360 1350 3852]
CHENG Laixian [4453 5490 0103]

ORG: All of the Institute of Mineral Deposits, Chinese Academy of Geological Sciences

TITLE: "Fluid Inclusions and Mineralization of the Yulong Porphyry Copper (Molybdenum) Deposit"

SOURCE: Beijing DIZHI XUEBAO [ACTA GEOLOGICA SINICA] in Chinese Vol 55 No 3, 1981 pp 216-231

TEXT OF ENGLISH ABSTRACT: By means of micro-heat stage, freeze stage, trace chemical analysis and polarizing microscope, the authors have studied the type, frequency, size, temperature, pressure, salinity daughter minerals, ratio of gas to liquid, revivable boiling and composition of fluid inclusions in the Yulong porphyry copper (molybdenum) deposit. From the data acquired, a series of very interesting problems, such as the character of thermal fluid, physico-chemical condition, alteration, mineralization and its possible mechanism, have been suggested.

Various minerals of the Yulong porphyry copper (molybdenum) deposit, are rich in fluid inclusions. Inclusions of different types (gaseous, liquid and poly-phase) are usually associated in the same sample or even the same mineral. In the

[Continuation of DIZHI XUEBAO Vol 55 No 3, 1981 pp 216-231]

monzonitic granite porphyry showing biotite-potash feldspar alteration, the inclusions are predominantly gaseous and poly-phase, while in the porphyry with quartz-potash feldspar and quartz-sericitization alteration is mainly poly-phase with a small amount of gaseous and liquid ones. In the altered argillic monzonitic porphyry and the altered propylitic country rock liquid inclusions predominate while gaseous and poly-phase ones are in minor amounts. Gaseous ones appear, however, to be more dominant in the country rock overlying the intrusive body. The homogeneous temperatures of the inclusions range from 600°C to 180°C; the deposition temperatures of Cu-Mo sulfides range from 420-250°C. From the center of the porphyry body to the wall rocks, the temperature of mineralization decreases gradually. The salinity of the fluid inclusions ranges from 6 to 56 wt percent, but the highly saline poly-phase inclusions are concentrated only in the region of economic mineralization. The Cu-Mo sulfides were deposited under the highly saline fluidity conditions. The pressures at the moment of homogenization are calculated to range from 100 to 1800 atm. The revivable boiling of the fluids is manifested at the top of the porphyry body by an intimate coexistence of gaseous and poly-phase inclusions.

The fluid in the inclusions belongs to the NaCl-KCl (CaCl_2 , MgCl_2)- CaSO_4 - H_2O type. As indicated by our analyses, the thermal fluids of mineralization were rich in halogen, alkaline metals, but poor in base metals, sulfur, phosphorus and so on, with very high temperature (600°C) during the initial stage. Such thermal fluids

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could easily have extracted the metals out of the country rocks around the tunnel through which they rose. When they arose and gathered at the top of the porphyry intrusive and its neighboring wall rocks, both alkali and hydrogen metasomatism inevitably took place with the ensuing decrease in temperature, thus giving rise to the deposition of metal sulfides.

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CSO: 4009/486

Hydraulic Engineering

AUTHOR: FENG Yan [7458 8746]

ORG: Second Bureau of Hydroelectric Engineering, Ministry of Electric Power

TITLE: "A Study of the Variable Isochrone Method for Flood Computation"

SOURCE: Beijing SHUILI XUEBAO [JOURNAL OF HYDRAULIC ENGINEERING] in Chinese No 4, 1981 pp 1-7

TEXT OF ENGLISH ABSTRACT: This article proposes a method of variable isochrone for flood computation. It combines the advantages of unit hydrograph method and isochrone. It can be used to consider both the nonlinearity and distribution of runoff. It has been applied to mountainous rivers for many years, and has achieved good results. Combining the variable isochrone for flood computation with the routing flow model of displacement and lag further improves the functions of the river storage. This model can be applied not only to mountainous rivers, but also to rivers of other regions, and thus the practical results can be improved.

AUTHOR: ZHANG Youtian [1728 2589 1131]
ZHANG Wugong [1728 2976 0501]

ORG: Both of the Water Conservancy and Hydroelectric Power Research Institute

TITLE: "The Boundary Element Method for Seepage Flow in Semi-infinite Region"

SOURCE: Beijing SHUILI XUEBAO [JOURNAL OF HYDRAULIC ENGINEERING] in Chinese No 4, 1981 pp 8-17

TEXT OF ENGLISH ABSTRACT: In this article the boundary element method for two-dimensional seepage flow in semi-infinite region is discussed. The authors propose a calculating method by using semi-infinite long element without artificially delimited calculation boundaries. The fundamental principles of the boundary element method are also briefly described and basic formulas of linearly varied elements are derived. In addition, some examples of application of the method are given.

AUTHOR: AO Lin [2407 7792]

ORG: Design Institute, Second Bureau of Hydroelectric Power, Ministry of Electric Power

TITLE: "Discussion of Boundary Conditions of the Foundation in Applying the Finite Element Method to Compute Stresses in Gravity Dam"

SOURCE: Beijing SHUILI XUEBAO [JOURNAL OF HYDRAULIC ENGINEERING] in Chinese No 4, 1981 pp 18-29

TEXT OF ENGLISH ABSTRACT: To the present time the finite element method has been one of the most effective ways to study the gravity or hollow gravity dam on a complicated foundation in engineering. The perviousness and range of foundation greatly influence the stresses caused by the hydraulic pressure on the base, including the heel and toe of the dam. In this paper, a method for selecting the boundary size and boundary conditions of the foundation when considering the foundation as impervious material is discussed. The method involves comparing the results of theoretical analysis with the results of the finite element method under the action of some typical loads. For the case of pervious foundation under seepage field, the variation of stresses related to the different foundation range and boundary conditions is discussed.

AUTHOR: YU Xiaozhong [0060 7522 0022]
JU Xiang [1446 5980]
CAO Jianguo [2580 1696 0948]

ORG: All of the Water Conservancy and Hydroelectric Power Research Institute

TITLE: "Analysis of Stability of Cracks in the Diamond Head of a Buttress Dam"

SOURCE: Beijing SHUILI XUEBAO [JOURNAL OF HYDRAULIC ENGINEERING] in Chinese No 4, 1981 pp 30-37

TEXT OF ENGLISH ABSTRACT: By using linear elastic fracture mechanics (LEFM), the study of cracks in the diamond head of a buttress dam is made in this paper. The finite element method is used to determine the stress intensity factors near the crack tip. The fracture toughness tests of concrete are performed on bend specimens under three-point loading. The nonlinear behavior of load-displacement curves and its effect on the fracture toughness are discussed. The stress intensity factors near the crack tip are obviously affected by the probable compression of contraction joints between the two buttress heads. The results of analysis indicate that this dam must urgently be strengthened.

AUTHOR: TU Chuanlin [3205 0278 2651]

ORG: Scientific Research Department, Southcentral China Hydroelectric Power Survey and Design Institute, Ministry of Electric Power

TITLE: "Fracture Analysis of Concrete Dam Heel"

SOURCE: Beijing SHUILI XUEBAO [JOURNAL OF HYDRAULIC ENGINEERING] in Chinese No 4, 1981 pp 38-50

TEXT OF ENGLISH ABSTRACT: In this paper, the approximate expressions have been found for the stress and displacement field in the vicinity of the V-notch as well as the concrete dam heel under the action of I, II and III mode loading. Then, some mixed mode fracture criteria which are applied to linear cracks in fracture mechanics are also applied and extended to the fracture analysis in the heel, and the fracture criteria under the action of various mixed mode loadings are established.

9717

CSO 4009/6

AUTHOR: WANG Ren [3769 0088]
YIN Youquan [3009 2589 3123]

ORG: Both of Beijing University

TITLE: "On the Elasto-plastic Constitutive Equation of Engineering Rock-like Materials"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 317-325

TEXT OF ENGLISH ABSTRACT: This paper reviews the progress of elasto-plastic constitutive equations for engineering rock-like materials. Under ordinary engineering conditions, rock-like materials are brittle. Their plastic property increases with the confining pressure. In general, their macroscopic mechanical properties can be represented by elasto-plastic models. However, due to the difference in basic deformation mechanisms, some concepts in the conventional theory of plasticity have to be modified. In rock-like materials,

- a. there is plastic volumetric strain, even under pure shear,
- b. the plastic potential is different from the yield criterion, thus it will entail non-associated flow rule,
- c. elastic modulus varies with plastic deformation, so while unloading Young's modulus will be different from its initial value,
- d. we may encounter strain softening, i.e., yield surface may shrink in the stress space. It is an unstable phenomenon not covered under Drucker's postulate, but may

[Continuation of LIXUE XUEBAO No 4, 1981 pp 317-325]

be accounted for with Ilyushin's postulate.

The total (deformation) theory is first reviewed. The constitutive equation may be stated as $\sigma = D\epsilon$, with the elastic matrix D now a function of plastic strain. Equations are also given for the two mechanical parameters for isotropic cases. For the incremental theory, the constitutive equations during loading are given. In the last section the endochronic theory is briefly introduced, and its possible extension to cover rock-like materials is discussed.

AUTHOR: LIN Tongji [2651 0681 7535]
CHEN Zhongying [7115 0112 5391]
WANG Ruyong [3769 3067 3196]
et al.

ORG: All of the Institute of Mechanics, Chinese Academy of Sciences

TITLE: "Ablation Wedges and Boundary Layer Transition"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 326-332

TEXT OF ENGLISH ABSTRACT: An experimental study was carried out on the ablation wedge, the turbulent wedge on an ablating surface. An interesting phenomenon of orderly distributed ablation wedge pattern was discovered on some spherical noses of wax models as well as on those of some high temperature ablating materials. Test results indicate that this kind of phenomenon occurs at roughly the same Reynolds number and that the number of the orderly distributed wedges on a spherical nose is not affected by the nose radii and the Mach number of the free stream. Based on an analysis of the detailed surface striation of the ablation wedge, a preliminary flow model was proposed to explain the wedge distribution and its relationship with the cross-hatching ablation pattern.

AUTHOR: ZHANG Hanxin [1728 3211 0207]
YU Zechu [0151 3419 2806]
LU Linsheng [7120 2651 3932]
et al.

ORG: All of the Chinese Aerodynamic Research and Development Center

TITLE: "Numerical Solution of Supersonic and Hypersonic Laminar Separated Flow"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 333-346

TEXT OF ENGLISH ABSTRACT: Based on a filtering method with switching function, an efficient time splitting numerical scheme of first order accuracy near shock waves and of second order accuracy elsewhere is used to solve the complete Navier-Stokes equations for supersonic and hypersonic flow over two-dimensional concave corners. To simplify computation, simplified Navier-Stokes equations are developed through an analysis of the order of magnitude of physical variables in the separated flow field. Computations are performed for ramp angles varying from 0 to 20 degrees at Mach numbers from 3.0 to 14.1 and Reynolds numbers from 10^3 to 10^5 under adiabatic or cooled wall temperature. Results obtained by solving numerically the complete and simplified Navier-Stokes equations are compared with the experiments. The comparison shows that the numerical scheme presented in this paper is satisfactory and that the simplified Navier-Stokes equations are applicable.

AUTHOR: LIU Yu [0491 6877]

ORG: Northwestern Polytechnical University

TITLE: "A Transformation and Method of Solution of the Laminar Boundary Layer Equations"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 347-352

TEXT OF ENGLISH ABSTRACT: A new transformation and solution method of the laminar boundary layer equations is presented in this paper. From the transformed equations we see that the properties of a specific boundary layer can be determined by a so-called "principal function" which appears as a parametric functional coefficient in the new equations. It can be proved that the velocity profile and other properties, such as the shear stress factor at a specific section of the boundary layer, are determined by the local value of the principal function in addition to the new longitudinal coordinate. On this basis, a simple method of solution of admissible accuracy is presented, which makes the otherwise tedious calculation of shear stress a very simple task.

AUTHOR: ZHOU Nan [0719 0589]

ORG: None

TITLE: "Two-dimensional Turbulent Jet Theory in a Stratified Fluid Due to Temperature Difference"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 353-363

TEXT OF ENGLISH ABSTRACT: This paper studies the characteristics of two-dimensional turbulent jet in a stratified fluid due to temperature difference in semi-infinite space. To account for the effect of buoyancy on the jet, a new hypothesis of the Reynolds stresses $-\overline{u_1'v_1'}$, $-\overline{\rho_1'v_1'}$ is made. For small Richardson number, we obtain the exact solution of equations of first order accuracy. This solution is different from the existing ones. The results are compared with experimental ones, and good agreement has been found. Results of this paper are useful for small Richardson numbers.

AUTHOR: QIAN Weizang [6929 0251 7022]
DAI Fulong [2071 4395 7127]

ORG: Both of Qinghua University

TITLE: "Effective Elastic Constants for Thick Perforated Plates"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 364-371

TEXT OF ENGLISH ABSTRACT: In this paper the constraint conditions of thick perforated plate ligament and corresponding bimoment in the ligament section are described. From these considerations theoretical formulae for calculating effective elastic constants of thick perforated plates with triangular penetration pattern are obtained. Theoretical values obtained from these formulae are in good agreement with Sampson's experimental results and Slot's numerical solution.

AUTHOR: GAO Yizhong [7559 5030 0022]

ORG: Shanghai Guangming Tool and Link-chain Factory

TITLE: "Nonlinear Flutter Analysis for Helicopter Rotor Blade"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 372-386

TEXT OF ENGLISH ABSTRACT: With the advent of fiberglass reinforced blade and due to the existence of backlash in rotor control system, it is necessary to study the flutter of a nonlinear structure. This paper tries to present a flutter analysis method for the rotor blade to meet such a need. The method may be of interest to helicopter designers.

AUTHOR: ZHONG Wanxie [6945 8001 0533]
QIU Chunhang [5941 2504 5300]

ORG: Both of Dalian Institute of Technology

TITLE: "Theory of Analysis of Partially Symmetric Structures"*

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 387-398

TEXT OF ENGLISH ABSTRACT: This paper combines the concepts of substructure analysis and group-theoretic methods to treat partially symmetric structures. It points out that if generalized displacements on the base vectors in irreducible subspaces are taken as unknown variables then the original displacement space can be divided into a series of uncoupled displacement subspaces, even for the substructure condensation problems. For each subproblem, triangularization of the internal global matrix as well as the condensation of the external stiffness matrix can be carried out individually. The combination of these condensed external stiffness matrices is just the external stiffness matrix of this substructure to the generalized displacements. The transformation to the external stiffness matrix represented in terms of the original displacements is also described. It is proved that only the elements relating to the displacements in the basic region need be calculated.

[Continuation of LIXUE XUEBAO No 4, 1981 pp 387-398]

This method increases the computation efficiency enormously in comparison with the ordinary repeated substructuring method.

* This paper was reported at the 15th ICTAM, Toronto, Canada, 1980.

AUTHOR: XU Cida [1776 2945 6671]
SHI Defang [2457 1795 5364]

ORG: Both of Tongji University

TITLE: "Discrete Method of Least Squares in Analysis of Plate-bending Problem"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 399-406

TEXT OF ENGLISH ABSTRACT: In this paper, the use of the discrete method of least squares (one of the MWR methods) to compute several plate-bending problems is presented. The trial function is a double power series with polynomial terms of two variables, which initially does not satisfy the governing differential equation of the plate nor the boundary conditions given. Therefore, the method used is a mixed method in MWR. All equations have been made dimensionless and weighted function has been taken as one. The maximum error of calculation for hinged and clamped square plates is less than 1 percent. The computer program is much simpler, time of computation is much shorter and the amount of preparatory work is much less than that of the MFE. It appears that this numerical method possesses many advantages, such as simpler computer program, less time consumption, smaller amount of work and errors in computation are known immediately after computation.

AUTHOR: LAN Zuyun [5695 4371 0061]
ZHANG Renxiang [1728 0086 7534]
ZHANG Hongzi [1728 7703 1217]

ORG: All of Beijing University of Iron and Steel Technology

TITLE: "An Experimental Method to Study Human Joint Motion in Biomechanics"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 407-410

TEXT OF ENGLISH ABSTRACT: This paper introduces an in vivo experimental method and its principles in studying the motion of the human joint. By means of this method, it is possible to investigate the rules of motion of the bio-joint. This is necessary for the establishment of a biomechanical model as well as of bio-engineering design. From our experiments, we found that the human knee joint and the human cubit joint are not the usual moving pairs, but are special bio-hinges.

AUTHOR: JIANG Fuben [1203 1788 2609]
LIU Baochen [0491 1405 3819]
LIN Shutian [5677 2579 3944]

ORG: JIANG of the Department of Mechanical Engineering, State University of New York, Stony Brook; LIU and LIN both of the Department of Engineering Mechanics, Qinghua University

TITLE: "Multipurpose Moire Fringes Method Applied to the Strain Analysis around Crack-tip in Slanted Notched Plates"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 411-416

TEXT OF ENGLISH ABSTRACT: In this paper, 500 lines per inch Moire grating is made of the specimen's grating. Using the multipurpose Moire fringes method, multi-purpose u and v-field isothetics around crack-tip and crack-opening displacements were experimentally determined in the slanted notched plates. The strain-fields were obtained before and after the crack began to propagate.

AUTHOR: JIAO Luqiong [3542 1462 8825]
WANG Ruquan [3769 3067 2938]

ORG: Both of the Computing Center, Chinese Academy of Sciences

TITLE: "Numerical Calculation of Hypersonic Viscous Flows over Hemisphere Cones at Angles of Attack"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, 1981
pp 417-420

TEXT OF ENGLISH ABSTRACT: A method for calculating hypersonic viscous flow over hemisphere cone is presented in this paper. Calculations are based on equations of three-dimensional shock layer. The difference method and marching technique along a streamwise direction are used. Shock shapes are automatically determined in the solution procedure.

9717
CSO: 4009/452

Meteorology

AUTHOR: NI Yunqi [0242 0336 3825]
JIN Hanliang [6855 3552 5328]
XUE Zongyuan [5641 1350 0337]

ORG: NI and JIN both of the Department of Meteorology, Nanjing University;
XUE of Shanghai Typhoon Institute

TITLE: "An Operational Numerical Forecasting Scheme of Typhoon Tracks over the Western Pacific and Its Preliminary Results"

SOURCE: Beijing DAQI KEXUE [SCIENTIA ATMOSPHERICA SINICA] in Chinese Vol 5 No 3, Sep 81 pp 281-291

TEXT OF ENGLISH ABSTRACT: In this paper, an operational numerical forecasting scheme of typhoon tracks over the western Pacific is proposed. In this scheme, the accuracy of computations is raised by applying the inverse smooth operator, and the prediction is improved by introducing the position of typhoon six hours after the initial time with application of the least square method. Sixty-nine historical cases were experimentally forecast and 48 cases in the 1977-1979 typhoon season were forecast routinely by this scheme with certain success. Finally, an approach for further improving this scheme is discussed.

AUTHOR: HUANG Ronghui [7806 2837 6540]
LI Rongfeng [2621 2837 7685]

ORG: Both of the Institute of Atmospheric Physics, Chinese Academy of Sciences

TITLE: "Statistical Features of the Vertical Distribution of Temperature and Wind of the Atmosphere and Their Application to the Design of a Numerical Weather Prediction Model"

SOURCE: Beijing DAQI KEXUE [SCIENTIA ATMOSPHERICA SINICA] in Chinese Vol 5 No 3, Sep 81 pp 300-309

TEXT OF ENGLISH ABSTRACT: In this paper the empirical orthogonal function is used to expand the observed vertical temperature profiles and the observed vertical wind profiles for Beijing, Shanghai and Guangzhou. The results show that the vertical temperature profiles at temperate and high latitude can be described by six parameters, the number of eigenvalues and corresponding eigenvectors, while seven to eight parameters are needed for low altitude. On the other hand, the vertical wind profiles can be represented by nine parameters for the temperate and high latitude as well as low latitude. It is shown from these facts that in order to accurately describe the baroclinic characteristic of the atmosphere, at least six levels are needed. If the initial wind fields are computed from the observed wind data, it is adequate to use nine levels in a primitive equation model.

9717
CSO: 4009/2

Metrology

AUTHOR: XU Yi [1776 3015]

LIAO Fuzhong [1675 1788 0022]

DAI Runsheng [2071 3387 3932]

et al.

ORG: XU, LIAO and DAI, et al., all of the National Institute of Metrology; et al.

TITLE: "Ring Lasers for Precise Angle Measurement"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 163-168

TEXT OF ENGLISH ABSTRACT: At present, ring lasers have been developed for angular velocity and angle sensors. These are very useful in inertial navigation and precise angle setting. This paper describes the experiment for the precise measurement of an angle with the ring laser. The principle, scheme of the ring laser with four frequencies, measuring results and methods for increasing the measuring accuracy are given. The measuring error of this apparatus is about ± 1 radian second (3σ), and it is possible to measure an angle by the ring laser with an accuracy of ± 0.5 radian second or less.

AUTHOR: FAN Hongfu [5400 7703 8702]

ORG: Department of Machinery, Xi'an Jiaotong University

TITLE: "An Analysis of Pneumatic Measurement of the Opening of Sliding Spool Valve"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 169-178

TEXT OF ENGLISH ABSTRACT: This paper describes a method of measuring the opening of a sliding spool valve with a low-pressure pneumatic instrument. According to the analysis of this instrument, the paper proves that the measured value of amplification rate i_* of the instrument determines the inflective point S_* of the valve opening, that is to say that it determines the initial point of the characteristic curve of the valve opening and the opening of the valve can be thus determined. The paper argues that this method may reduce the error caused in the classical method in which the characteristic curve is approximated by a straight line. Based on the above-mentioned point of view, the paper points out that the determination of the valve opening of a flow-type pneumatic instrument cannot be corrected as stated above.

AUTHOR: JIANG Heping [5592 0735 1627]
QIAO Shizhong [0829 0013 1813]

ORG: Both of Shanghai Metrology Research Institute

TITLE: "An Attenuation Measuring System with Self-calibration Technique in the Frequency Range of 8.6 - 9.7 GHz"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981 pp 179-183

TEXT OF ENGLISH ABSTRACT: This paper describes an attenuation measuring system with self-calibration technique in the frequency range of 8.6 - 9.7 GHz. The uncertainty in the measuring range of 0-42 dB is less than 5×10^{-4} .

AUTHOR: YANG Di
et al.

ORG: None

TITLE: "A Provisional Primary Standard of Microhardness Tester"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981 pp 184-187

TEXT OF ENGLISH ABSTRACT: This paper describes a precision microhardness tester which is used as the provisional primary standard. The loading process and the duration of loading are controlled automatically. The magnification of the microscope used for indentation measurement is 640. There are six loading stages which are 50, 100, 200, 300, 500 and 1000 grams. The measuring accuracies are better than ± 2.0 percent at 200 g and ± 3.0 percent at 50 g (below HV500) respectively.

AUTHOR: DAI Leshan [2071 2867 1472]
LING Shankang [5677 0810 1660]

ORG: DAI of Fudan University; LING of the National Institute of Metrology

TITLE: "A New Deviation Function for Standard Resistance Thermometer"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 188-197

TEXT OF ENGLISH ABSTRACT: This paper proposes a new unified deviation function for 13.81 - 273.15K, which is:

$$\Delta W = W - W_s = (W - 1) \frac{a_1 + a_2 W + a_3 W^2 + a_4 W^3}{1 + a_1 W + a_2 W^2 + a_3 W^3}$$

Results show that non-uniqueness of the new scale proposed is much better than IPTS-68, especially in the region of 17-273.15K.

AUTHOR: CHU Zaixiang [5969 6528 4382]
CHEN Shouren [7115 1343 0088]
CHEN Hongpan [7115 1347 4323]

ORG: All of Harbin Institute of Technology

TITLE: "The Calculation of Effective Emissivities of Axisymmetric Isothermal Diffuse Cavities"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 198-207

TEXT OF ENGLISH ABSTRACT: In this paper, a method used to calculate the effective emissivities, the most important parameter of the axisymmetric isothermal diffuse blackbody cavities, is described. This method is simpler because of its neglecting the third reflection of radiation, so that the numerical iteration can be avoided.

Using the numerical zone-approximation method, we have calculated the emissivities of some typical double cones, cylindrocones, conical and cylindrical cavities on a TQ-16 digital computer. After comparing our results with those obtained by the precise method, we found that very high accuracy can also be attained with our method. Especially in the cases of higher material surface emittance ϵ , for instance $\epsilon = 0.85$, the maximum deviations along the whole surface of every equal practical cavity between the two methods are all less than 0.0002.

AUTHOR: HU Qiduo

ORG: None

TITLE: "A Multi-purpose Boot-strap Operational Amplifier"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 208-216

TEXT OF ENGLISH ABSTRACT: This paper describes a multi-purpose amplifier based on the so-called boot-strap method. It can be used as the ideal phase opposition shifter, the follower with good isolation, the differentiator and the automatic regulator for balancing the auxiliary branch of the bridge, etc.

A common basic circuit can be used for all these purposes, with only a few parameters and the feedback types having to be changed correspondingly. The frequency range is from 0 to 2500 Hz, and the operating error is a few parts in 10^6 .

AUTHOR: HU Yanrui [5170 5888 3843]
MU Shaolin [4476 4801 2651]

ORG: HU of the National Institute of Metrology; MU of Yangzhou Teacher's College

TITLE: "The Stability of Highly Precise Saturated Standard Cells"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 217-221

TEXT OF ENGLISH ABSTRACT: This paper describes the research on the variation of the unit value of the highly precise saturated standard cells which are used as the secondary standard of voltage. The results show that the annual change of EMF of these cells developed by our laboratory is less than $0.3 \mu\text{V}$. At the same time, the effect of the glass container, clearing method of H-vessel of glass, electrolyte acidity and particle size of Hg_2SO_4 on the stability of highly precise saturated standard cells are also discussed.

AUTHOR: WU Xuezhou [0702 1331 0719]
J.B. Adam
R. Vatin

ORG: WU of the National Institute of Metrology; Adam and Vatin both of the
Laboratoire de Metrologie des Rayonnement Ionisant

TITLE: "Absolute Measurement of the Activity of ^{14}C Nuclide with Liquid Scintillation Coincidence"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 222-227

TEXT OF ENGLISH ABSTRACT: This paper describes the liquid scintillation coincidence for standardization of pure β emitter. The efficiency of a liquid scintillation detector may be varied by placing optical filters between the vessel and the phototube. The count rate of three channels varies with the anode current. The value $N_1 N_4 / N_c$ calculated with the Cox-Isham formula varies monotonously with the anode current, but the disintegration rate can be obtained with the extrapolation of $N_1 N_2 / N_c$ as the inverse anode current is approaching zero.

AUTHOR: XIE Shengluo [6200 5116 3157]
WANG Xuan [3769 5503]
XU Baojin [1776 5508 3866]

ORG: All of the National Institute of Metrology

TITLE: "pH Scale of Aqueous Solution at Elevated Temperature 100-150°C"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981
pp 228-232

TEXT OF ENGLISH ABSTRACT: This paper describes the establishment of pH scale of aqueous solution at elevated temperature 100 to 150°C. In this work, the method of hydrogen electrode-silver/silver chloride electrode without liquid junction cell has been used for determining the pH of four standard solutions which contain pH ranging from 1 to 9. The total uncertainty is ± 0.04 pH. The comparison between our results and others is also given.

AUTHOR: TANG Gaohua
et al.

ORG: None

TITLE: "The Precise Coulometric Titration Method for the Determination of the Purity of Sodium Chloride"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981 pp 233-238

TEXT OF ENGLISH ABSTRACT: This paper describes a method for the determination of the chloride ion with coulometrically generated silver ion, in which the silver plate (stated purity 99.999 percent) is used as a generator anode, the platinum net used as a cathode, the Ag_2S ion-selective electrode for the indicator electrode and the reference electrode is Type 217 calomel electrode for two salt bridges.

Sodium chloride was solid weighed before adding the sample and it was resolved with a small amount of distilled water. During electrolysis, the solution was stepwise dropped from a pipet to the electrolyte; therefore, on the one hand the diffusion of silver ion to cathodic electrolyte can be eliminated, and on the other hand the error caused by the precipitate of silver chloride to inclusion of the sodium chloride can be avoided because of the addition of the solid samples. When the four groups of 0.2, 0.3, 0.4 and 0.5 grams are weighed, the mean values of their purities are 100.002, 99.998, 99.999 and 100.000 percent respectively, which shows

[Continuation of JILIANG XUEBAO No 3, 1981 pp 233-238]

that the purity values of determination are in good agreement.

The sources of random and systematic errors are analyzed also. The standard deviation of this method is 0.005 percent, and when the confidence level is about 99 percent the total uncertainty is 0.006 percent for the measurement of sodium chloride.

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TITLE: "A Reduced Formula for Calculating Distribution Temperature of Tungsten Incandescent Lamps"

SOURCE: Beijing JILIANG XUEBAO [ACTA METROLOGICA SINICA] in Chinese No 3, 1981 pp 239-241

TEXT OF ENGLISH ABSTRACT: In this paper, a reduced formula for calculating temperature distribution of tungsten lamps is derived from the CIF definition formula of temperature distribution of light sources directly by means of the spectral characteristics of tungsten incandescent lamps in visible regions.

9717

CSO: 4009/465

Military Medical Research

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TITLE: "Management of Missile Injuries of the Spine and Spinal Cord"

SOURCE: Beijing JIEFANGJUN YIXUE ZAZHI [LIBERATION ARMY MEDICAL JOURNAL] in Chinese Vol 6 No 4, Aug 81 pp 196-198

ABSTRACT: Missile injuries of the spine and spinal cord often involve organs of the chest and abdomen beyond the spinal wounds that are difficult to heal and severe infection may also complicate the situation. The mortality rate of such wounds during WWI and II was as high as 47-80 percent, before antibiotics were introduced. Today, with antibiotics and such measures as blood transfusion to combat shock, etc. much progress has been made and the mortality rate has been reduced to below 15 percent. This paper reports the satisfactory results of treating 20 cases of such injuries, with emphasis on post-operative care and management. Clinical data and treatment results are given. Cases suitable and not suitable for surgery are discussed in special detail.

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TITLE: "Preliminary Study on Routes of Transmission of Epidemic Hemorrhagic Fever Infection"

SOURCE: Beijing JIEFANGJUN YIXUE ZAZHI [LIBERATION ARMY MEDICAL JOURNAL] in Chinese Vol 6 No 4, Aug 81 pp 206-207

ABSTRACT: In Apr-Aug 80, the authors used *Apodemus agrarius* as the experimental animal to carry out a preliminary study on the pathways of transmission of epidemic hemorrhagic fever in the 4 groups of skin wounds, mite vectors, the respiratory tract, and the gastroenteric tract. Results confirm with those of ordinary epidemiological surveys in so far as the fact that hemorrhagic fever related antigen positive blood and urine of the experimental animal are infectious and the infection is transmittable through skin wounds and bites of mites. With the density of these rats at its peak during the fall harvest season, there must be an increase of contamination of their excrement in crops and soil. This fact is perhaps related to the fact that the peak of hemorrhagic fever occurs in the fall and winter. Study of transmission through respiratory and gastrointestinal tracts is being continued.

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TITLE: "Treatment of 4 Cases of Acute Radiation Disease and Follow-up 18 Years Later"

SOURCE: Beijing JIEFANGJUN YIXUE ZAZHI [LIBERATION ARMY MEDICAL JOURNAL] in Chinese Vol 6 No 4, Aug 81 pp 216-219

ABSTRACT: On 11 Jan 63, the 10 Ci [curie] ^{60}Co source, used for irradiating seeds, was brought home by a little boy. Consequently, the boy, his mother, brothers, sister, and an uncle who stayed over night, received 9 hours of irradiation, and acute radiation sickness developed, with symptoms of general weakness, lack of appetite, and nausea for all and vomit and abdominal pain for some. A fever developed with positive bacterial culture of the blood 8 days later. When the temperature was receding, the white blood cell count rose, but with treatment and care, the acute stage was over in 2 months for 4 of the group. The boy and his brother died 12 and 11 days after the accident respectively. Due to the unevenness of the exposure, the uncle's left ankle was severely burned and amputation was performed in 1968. The mother suffered fracture of the hip following ulceration of the leg for years but was healed in 1975. The paper includes brief analyses of the thyroid glands, the adrenocortical, sexual, and immune functions, and changes of the blood building system, the EEG, cell chromosomal anomalies, etc. of the 4 survivals during the past 18 years.

6248

CSO: 4009/495

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TITLE: "Marine Environmental Geochemistry. III. Forms of Arsenic in Surface Sea Water of Jiaozhou Bay"

SOURCE: Qingdao SHANDONG HAIYANG XUEYUAN XUEBAO [JOURNAL OF SHANDONG COLLEGE OF OCEANOLOGY] in Chinese Vol 11 No 3, 1981 pp 32-38

EXCERPTS FROM ENGLISH ABSTRACT: 1. The content of the total arsenic, particulate arsenic, dissolved arsenic, dissolved organic arsenic and inorganic arsenic (As (III) and As (V)) in the surface sea water taken from coastal sites of Jiaozhou Bay have been determined by using anodic stripping voltametry (ASV) and $\text{Fe}(\text{OH})_3$ coprecipitation-DDCAg methods.

2. The results of the experiments show that: (1) The forms of arsenic in the coastal surface water of Jiaozhou Bay are essentially particulate arsenic; (2) The concentration range of dissolved arsenic is equivalent to the content of arsenic in unpolluted sea water, which means that the water of Jiaozhou Bay has not been polluted yet by arsenic; (3) The sites from which water samples contain organic arsenic in concentrations of more than 50 percent of the total dissolved arsenic

[Continuation of SHANDONG HAIYANG XUEYUAN XUEBAO Vol 11 No 3, 1981 pp 32-38]

are situated in estuaries, downstream from pesticide factories and near agricultural areas; (4) The fluctuation of concentrations of inorganic arsenic in Jiaozhou Bay is very small, but the ratio of $\text{As}(\text{III})/\text{As}(\text{V})$ is quite different (from 0.56 to 3.16). Sites with a high $\text{As}(\text{III})/\text{As}(\text{V})$ ratio are situated in areas along the coast. Whether there is any relationship between the $\text{As}(\text{III})/\text{As}(\text{V})$ ratio and high primary productivity or bioreduction should be identified later by field investigations.

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TITLE: "A Preliminary Study of Volcanic Rocks and Various Intrusive Rocks in Hongdao District, Qingdao"

SOURCE: Qingdao SHANDONG HAIYANG XUEYUAN XUEBAO [JOURNAL OF SHANDONG COLLEGE OF OCEANOLOGY] in Chinese Vol 11 No 3, 1981 pp 71-101

TEXT OR ENGLISH ABSTRACT: In this article the volcanic mechanism of Hongdao District, Qingdao, is discussed. Petrographic-chemical analysis was made for 60 samples collected from volcanic rocks and various intrusive rocks of the Qingshan Group. Through the calculations using the methods of CIPW, Rittmann, etc., diagrams of the methods of MacDonald, Rittmann, etc., and comparison with the average value of Nockoldo trachyte-andesite and the volcanic rocks of the lower part of the Changjiang River, these samples are considered to be of alkaline rock series and evolve toward enrichment of potassium.

According to Q-grouping method of mathematical geology, these samples can be divided into two types: one is basic-neutral rock of the first cycle of the

[Continuation of SHANDONG HAIYANG XUEYUAN XUEBAO Vol 11 No 3, 1981 pp 71-101]

Qingshan Group and the other is acidic rock of the second cycle.

In addition, the genesis of volcanic rocks and intrusive complexes are discussed according to corresponding methods of mathematical geology, especially the diagram of Raju's method. There are two different origins of Laoshan granite, Qingdao, to be considered: the pink granite characterized by biotite is magmatic in origin and the pale granite without biotite is of replacement origin.

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CSO: 4009/19

Oil and Gas Geology

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TITLE: "A Study of Clay Compaction and Primary Migration of Oil and Gas"

SOURCE: Jiangling SHIYOU YU TIANRANQI DIZHI [OIL AND GAS GEOLOGY] in Chinese
Vol 2 No 2, Jun 81 pp 114-122

TEXT OF ENGLISH ABSTRACT: A study concerning clay compaction, based on the data of time-depth relationships of acoustic wave transmission from nearly 50 wells in the Biying depression, proves that: 1) There is usually a great difference in clay compaction in different parts of the same depression, and the oil and gas accumulation is closely associated only with the areas where both hydrocarbon generation and primary migration occur; 2) The anomalous compaction section of the clay after organic matter maturation may determine the possible depth of primary migration in this area; 3) The rapidly compacted zones of the anomalous compaction section seem to be the most favorable intervals for the primary migration of hydrocarbons; 4) The depth, favorable to primary migration, determines the main stage of oil and gas accumulation; 5) The highly compacted clay section may form a caprock which is sealed by pressure and affects the depth of longitudinal distribution of oil and gas accumulation.

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ORG: Both of the Geology Research Institute, Dagang Oil Field

TITLE: "The Sedimentation History and Environmental Characteristics of the Early Tertiary in Huanghua Basin"

SOURCE: Jiangling SHIYOU YU TIANRANQI DIZHI [OIL AND GAS GEOLOGY] in Chinese
Vol 2 No 2, Jun 81 pp 141-157

TEXT OF ENGLISH ABSTRACT: Huanghua Basin is one of the Mesozoic and Cenozoic fault-limited basins and is also one of the important oil-bearing basins in eastern China. The Early Tertiary sediments in it have a huge thickness of about 6000 meters, resulting from two large sedimental cycles of Eocene and Oligocene ages. It can be divided into three stages of development: 1) The earlier, nonuniform depression; 2) Middle, deep depression accompanied by extension; 3) The later, uplift and contraction. There are different characteristics of sedimentation types for each of these stages: 1) The earlier stage is characterized by sedimentation predominantly in saline lake and alluvial fan environments; 2) The middle stage has mainly subaqueous sedimentation from gravitational flow; 3) The later stage is characterized by extensive development of the river delta. Oil and/or gas is formed and concentrated at all three of the above-mentioned stages, with the richest occurring at the middle stage. This article deals with the sedimentation process in the Huanghua Basin and its major sedimental types during the Eocene-Oligocene.

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TITLE: "A Discussion of the Method for Quantitative Prediction of Oil and Gas"

SOURCE: Jiangling SHIYOU YU TIANRANQI DIZHI [OIL AND GAS GEOLOGY] in Chinese Vol 2 No 2, Jun 81 pp 104-113

TEXT OF ENGLISH ABSTRACT: As the major component of kerogen, carbon, according to its distribution during revolution, can be divided into potential carbon (B_0), which transforms gradually into the molecules of bitumen, and nonpotential carbon (N), which cannot undergo such a change. With the increasing of the buried time and depth, the residual rate of carbon decreased gradually. In addition, the so-called potential carbon may be subdivided into transformed carbon (including the released carbon M from source rock, residual oil and gas and chloroform-extracted bitumen A of source rock) and the not yet transformed carbon (B). $B/B_0 = \alpha$, which is called the residual carbonic rate of potential carbon in kerogen. A further study of α may obtain rather accurate information during the kerogen revolution.

According to the kerogen thermo-degradation of oil and gas genetic theory and the basic principle of chemical kinetics, the author has deduced the residual carbonic rate of potential carbon and other mathematical formulas.

[Continuation of SHIYOU YU TIANRANQI DIZHI Vol 2 No 2, Jun 81 pp 104-113]

Applying these formulas and the data for the abundance of total organic carbon and disseminated bitumen, it is possible to solve some questions related to quantitative oil and gas prediction, such as the quantitative estimation of maturity of kerogen, the reconstruction of the evolutionary process of kerogen, the confinement of the upper and lower limits for mature zones, the estimation of the amounts of bitumen generated, the calculation of the primary amounts of oil and gas, and the comprehensive assessment of the source rocks.

This method can be applied to various sedimentary rocks, including coal-bearing strata and "red beds."

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CSO: 4009/30

Seismology

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TITLE: "The Anomalous Magnetic Declinations before the Liyang Earthquake (M=6.0)"

SOURCE: Kunming DIZHEN YANJIU [JOURNAL OF SEISMOLOGICAL RESEARCH] in Chinese Vol 4 No 2, 1981 pp 152-157

TEXT OF ENGLISH ABSTRACT: According to the results from the review of magnetic declinations at nearly 200 sites after the Liyang Earthquake (M=6.0), this paper suggests the determinative method and selective standard for the quality of the magnetic declination data and points out that the majority of the sites (over 98 percent) are strongly interfered with by the environmental and instrumental conditions. By analyzing the anomalous magnetic declinations before the Liyang Earthquake it is considered that the discernible anomalies are shown only within 100 km from the epicenter and the anomalous period is less than 2 months. The paper suggests that there should be an overall rearrangement and improvement for the observation of the magnetic declination. If the data quality can be guaranteed, it can be expected that magnetic declination will play a certain role in short-term prediction.

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ORG: Both of the Seismological Bureau of Ningxia Province

TITLE: "The Time Characteristics of the Precursory Swarms and Short-term Precursory Anomalies"

SOURCE: Kunming DIZHEN YANJIU [JOURNAL OF SEISMOLOGICAL RESEARCH] in Chinese Vol 4 No 2, 1981 pp 158-165

TEXT OF ENGLISH ABSTRACT: According to the Chinese earthquake data of the past few years, it was found that a number of strong earthquakes were preceded by swarm activities. Some of these swarms occurred at the epicentral area or its vicinity of the forthcoming shocks, or at an active tectonic zone which had conjugate relationships with the earthquake-generating tectonics of the main shock and kept a certain distance away from the epicenter of the forthcoming earthquake. Such swarms began to appear five months before the main shock in most cases, and we call them precursory swarms. The maximum magnitude M_b among the precursory swarms, the duration T of the swarms and the epicentral distance D away from the main shock have nothing to do with the magnitude M_{main} of the forthcoming main shock. If the observational precursory data are also taken into account for the analysis, it seems to be reasonable to set the five months before the shock as the upper limit for the appearance of the short-term precursors of the strong earthquakes. During

[Continuation of DIZHEN YANJIU Vol 4 No 2, 1981 pp 158-165]

this time interval, the observed curves of the precursors either adopt turns or show apparent phenomena of acceleration, i.e., switching from a stage of medium-long-term slow changes into those of short-term accelerated changes. In addition, when the epicenters of strong earthquakes migrated along the active tectonic zone or the edge of a block, a five-month separation for the migration was also observed.

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TITLE: "A Preliminary Discussion of Solar Activity Correlated with Earthquakes Occurring in China"

SOURCE: Kunming DIZHEN YANJIU [JOURNAL OF SEISMOLOGICAL RESEARCH] in Chinese Vol 4 No 2, 1981 pp 185-195

TEXT OF ENGLISH ABSTRACT: Results from Chinese seismological statistical examinations have disclosed the 1st-20th periods of solar activity in the following:

1. The magnitude of deep-focus earthquakes ≥ 5 (not including aftershocks) is closely correlated with the $\lg R$ linearly.
2. In the 2nd, 3rd or 4th year following the maximum value year of the 11-year-period of solar activity, in particular the 3rd year, the activities of earthquakes ≥ 6 with shallow or medium-deep foci clearly tended to increase. Activities of shallow or medium-deep foci earthquakes ≥ 7 tended to increase in the 3rd year following the maximum value year. In the continental areas, shallow or medium-deep foci earthquakes ≥ 6 also tended to have clear-cut increased activities in those three years. In Taiwan, earthquakes with magnitudes ≥ 6 or 7 were most active in the year $M + 3$.

[Continuation of DIZHEN YANJIU Vol 4 No 2, 1981 pp 185-195]

A preliminary discussion of the physical process of solar activity affecting the occurrence of earthquakes occurring in China is also made in this paper.

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CSO: 4009/4

Telecommunications

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TITLE: "Reciprocal Mixing in HF Communication Receivers in the Fixed Service"

SOURCE: Shanghai DIANXIN KUAIBAO [TELECOMMUNICATIONS INFORMATION] in Chinese No 5, 81 pp 23-25

ABSTRACT: Frequency synthesizers have now been generally adopted in modern good quality receivers but the frequency provided by the available frequency synthesizers is insufficiently pure. Aside from the needed signals, many other frequencies are usually mixed in and the required output signals usually carry noises on both sides to affect the interference and noise resistance property of the receiver. Thus, a new demand has appeared in recent years; this is the so called reciprocal mixing. There is no internationally unified index for measuring reciprocal mixing, however. The indices adopted by the various countries are also by no means uniform. Aside from discussing reciprocal mixing of receivers with frequency synthesizers, this paper proposes a quantitative relationship between the external noise carried by a frequency synthesizer and the reciprocal mixing standard of the receiver and suggests a unified testing method as the standard. Finally, some typical data of reciprocal mixing are introduced. It is hoped that they may be included in related document of the CCIR. This paper was submitted to the 1980 CCIR meeting.

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CSO: 4009/498

Zoology

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ORG: RUAN, CHEN Chongkun and CHEN Yueshu all of the Department of Blood Diseases, Suzhou Medical College; YU, TU and XU, et al., all of the Kunming Institute of Zoology, Chinese Academy of Sciences

TITLE: "The Action of the Fibrinolytic Enzyme of the Venom of Agkistrodon halys (Pallas) on Fibrinogen"

SOURCE: Kunming DONGWUXUE YANJIU [ZOOLOGICAL RESEARCH] in Chinese No 2, May 81
pp 163-167

TEXT OF ENGLISH ABSTRACT: By means of SDS (sodium dodecyl sulfate)-polyacrylamide gel electrophoresis, it was demonstrated that the fibrinolytic enzyme of Agkistrodon halys (Pallas) venom not only degrades the α chain but also degrades the β chain of human fibrinogen. A series of fragments with different molecular weights, X', Y', D' and E', could be observed electrophoretically on acid polyacrylamide gels after degrading fibrinogen. The mechanism of the hydrolytic action of human fibrinogen by the fibrinolytic enzyme is discussed.

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CSO: 4009/488

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